



Land-Ocean Interactions in the Coastal Zone



INPRINT

- LOICZ reaches out to China: East Asian Regional Node opened at YIC in Yantai; China Eastern Normal University, Shanghai, hosts successful IMBER – LOICZ Open Science Meeting.
- Further in this Newsletter: Coastal vulnerability in a physical, socio-ecological and governance context.
- The SCOR-LOICZ-IAPSO WG 122 explores multi-scale influences on estuarine resilience, sediment dynamics and hydrology.
- Combined knowledge-action systems and ways for integrated socio-ecological systems analysis are focus in LOICZ Topic 1.
- Governance baseline assessment methods paralleled by training and certification of senior coastal management practitioners are recent developments in LOICZ Topic 3 with a current regional focus on Latin America and in future East Africa and the Arctic.
- Collaborative efforts with GWSP and the CSDMS group at INSTAAR, Boulder, look into the vulnerability and risk of deltas, identified by IPCC to be among the areas most susceptible to climate change.
- LOICZ welcomes new SSC members.



Photo: H. Kremer



Contents	
LOICZ People	2
Scientific Highlights	3
Estuaries and the Sediments: How they Deal with Each Other	3
PRIORITY TOPIC 1	6
ECOSUMMIT 2007 in Beijing, May 22–25, 2007	6
2nd LOICZ Symposium on “Social-Ecological System Analysis”	6
PRIORITY TOPIC 2	7
PRIORITY TOPIC 3	7
2nd LOICZ Workshop on Coastal Governance, 1–3 May, 2007, University College, Cork, Ireland	7
Initial Meeting to Plan the Training of Trainers Event, Preparation for an Assessment of Coastal Governance in Latin America, Miami, USA, August 29–31, 2007, Summary	8
Activities Reports	9
The IMBER/LOICZ Continental Margins Open Science Conference, 17–21 September, 2007	9
GWSP/LOICZ/CSDMS Workshop “Dynamics and Vulnerability of River Delta Systems”, 26–28 September, 2007	10
“Arctic Coastal Zones at Risk” – a physical and socio-ecological perspective on Arctic Coastal Change, 1st LOICZ/IASC Workshop, 1–3 October, 2007	11
Ocean Colour 2007 Africa, 24. September – 5 October, 2007	13
LOICZ News	13
We welcome two new SSC Members	13
LOICZ Nodes	16
New LOICZ Regional Node East Asia and LOICZ-Yantai International Seminar	16
IPO Notes	17
IPO Staff changes	17
Publications	17
Coastline Reports 8 (2007) – Coastal development: The Oder estuary and beyond	17
Effects of nutrient Enrichment in the Nation's Estuaries: <i>A Decade of Change</i>	17
Have you seen	18
What's new on the web	19
Calendar	19



LOICZ People

LOICZ Scientific Steering Committee

Jozef M. Pacyna (Chair) – Norway

Center for Ecological Economics (CEE)
Norwegian Institute for Air Research NILU

Felino P. Lansigan (Vice-chair) – Philippines

School of Environmental Science and
Management (SESAM) and
Institute of Statistics (INSTAT)
University of the Philippines Los Banos (UPLB)

Nancy N. Rabalais (Vice-chair) – USA

LUMCON – Louisiana Universities Marine

William C. Dennison – USA

Center for Environmental Science
University of Maryland

Anthony T. Forbes – South Africa

Prof A.T. Forbes
P.O. Box 417, Hyper by the Sea 4053, Durban,
South Africa

Juan D. Restrepo – Colombia

Department of Geological Sciences
EAFIT University

Isao Koike – Japan

Ocean Research Institute, University of Tokyo

John Parslow – Australia

CSIRO Marine Research

Eva Roth – Denmark

Department of Environmental and Business Economics
University of Southern Denmark

Alice Newton – Portugal

Faculty of Science and Technology
University of Algarve

Alison Gilbert – Netherlands

Institute for Environmental Studies (IVM)
Free University Amsterdam

Bernhard Glaeser – Germany

Research Center Berlin (WZB)

Weigen Huang – China

Second Institute of Oceanography
State Oceanic Administration

Laurence Mee – UK

Marine Institute
University of Plymouth

Stephen B. Olsen – USA

Coastal Resources Center
University of Rhode Island

Ramesh Ramachandran – India

Institute of Ocean Management
Anna University

Yoshiki Saito – Japan

Institute of Geology and Geoinformation
Geological Survey of Japan

Dennis P. Swaney – USA

Department of Ecology and Evolutionary Biology
Cornell University

LOICZ Regional IPO Nodes

South Asia Regional Node – Sri Lanka

Nalin Wikramanayake
Department of Civil Engineering
Open University of Sri Lanka

Southeast Asia Regional Node – Singapore

Beverly Goh
National Institute of Education
Nanyang Technological University

East Asia Regional Node – Yantai

Cheng TANG
Yantai Institute of Coastal Zone Research for Sustainable
Development (YIC)

West Africa Node (Associated: START / PACOM)

Chris Gordon
Centre of African Wetlands
University of Ghana
Legon Accra, Ghana

LOICZ IPO

Hartwig H. Kremer
Chief Executive Officer
hartwig.kremer@loicz.org

Juergen Weichselgartner
Senior Science Coordinator
j.weichselgartner@loicz.org

Barbe Goldberg
Office and Communications Manager
Ellen-Barbe.goldberg@loicz.org

Christiane Hagemann
Office Administration
c.hagemann@loicz.org
loicz.ipo@loicz.org

Christoph Sebald
Research Assistant – GIS and Typology
christoph.sebald@loicz.org

Götz Flöser
Contributing Scientist, Polar Activities
Institute for Coastal Research
GKSS Research Centre
floeser@gkss.de
<http://coast.gkss.de/loicz>

Address updates and subscription

Please use the LOICZ online database for address updates and subscription to the LOICZ newsletter. If you have any questions, please contact the IPO at loicz.ipo@loicz.org.

This newsletter is also available online at www.loicz.org

Scientific Highlights

Estuaries and the Sediments: How they Deal with Each Other

Gerardo M. E. Perillo¹, James P. M. Syvitski², Carl L. Amos³, Pedro Depetris⁴, John Milliman⁵, Morten Pejrup⁶, Yoshiki Saito⁷, Maria Snoussi⁸, Eric Wolanski⁹, Marek Zajaczkowski¹⁰, Robert Stallard¹¹, Eric Hutton², Albert Kettner², Robert Meade¹², Irina Overeem², Scott Peckham²

¹ CONICET – Instituto Argentino de Oceanografía, CC 804, B8000FWB Bahía Blanca, Argentina and Departamento de Geología, Univ. Nac. del Sur, San Juan 670, 8000 Bahía Blanca, Argentina

² Community Surface Dynamics Modeling System, University of Colorado-Boulder, Campus Box 545, Boulder CO, 80309-0545, USA

³ Southampton Oceanographic Centre, Southampton, SO14 3ZH, UK

⁴ CIGeS/FCEFYN, Universidad Nacional de Córdoba, Avda. V. Sarsfield 1611, X5016GCA Cordoba, Argentina

⁵ Virginia Institute of Marine Sciences, Gloucester Point, VA, 23062, USA

⁶ Institute of Geography, University of Copenhagen, Øster Voldgade 10, DK-1350 København K, Denmark

⁷ Coastal Environment Research Group, MRE, Geological Survey of Japan, AIST, Central 7, Higashi 1-1-1, Tsukuba, Ibaraki, 305-8567, Japan

⁸ Université Mohamed V, Faculté des Sciences, Département des Sciences de la Terre, B.P. 1014, Rabat, Maroc

⁹ ACTFR, James Cook University, and Australian Institute of Marine Science, Townsville, Qld., Australia

¹⁰ Institute of Oceanology, Polish Academy of Sciences, 55 Powstancow Warszawy Str., 81-712 Sopot, Poland

¹¹ Institute of Arctic & Alpine Research, University of Colorado at Boulder, Campus Box 450, Boulder CO, 80309-0450, USA

¹² U.S. Geological Survey, Water Resources Division, Denver, Colorado 80225

Corresponding author: Gerardo M. E. Perillo – perillo@criba.edu.ar

Introduction

Estuaries are an important component of the coastal zone in terms of the environmental and socioeconomic impact. Understanding the evolution of estuaries and their hydrodynamics will help us better predict their vulnerability and resilience, in light of ongoing climatic change and increasing human migration to the coast.

This understanding will lead to better support for decision makers and stakeholders. Estuarine dynamics often respond to forces impacting an entire coastal region for very long (geological) periods of time. A global survey of estuaries reveals a high level of variability in estuarine geomorphic features, but also many similarities that transcend scale (Figure 1).

Figure 1: A sampling of world estuaries:

A. Rio de la Plata, South America;
 B. Congo, Africa; C. Yenisey Bay, Russia;
 D. Chao Phraya, Thailand;
 E. Queen's Channel, Australia;
 F. Zhu Jiang Estuary (Pearl), China;
 G. Fly, PNG; H. Majang, Borneo;
 I. Han, South Korea; J. Bay of Fundy, Canada;
 K. St. Lawrence Estuary, Canada;
 L. James Bay, Canada; M. Waaden Sea;
 N. Cook Inlet, Alaska; O. Chesapeake Bay, USA;
 P. Fjords of Greenland;
 Q. Bristol Channel; R. Gironde, France;
 S. Fjords of Chile; T. Anadyr, Russia;
 U. Iharane, Madagascar;
 V. Baie de la Mahajamba, Madagascar;
 W. Saint-Augustin Bay, Madagascar;
 X. Thames Estuary, UK & Rhine/Maas Estuary, Netherlands. Note North in these images is variable, as is the scale – many features of estuaries are scale invariant. Satellite images were processed at the INSTAAR ECI Facility.

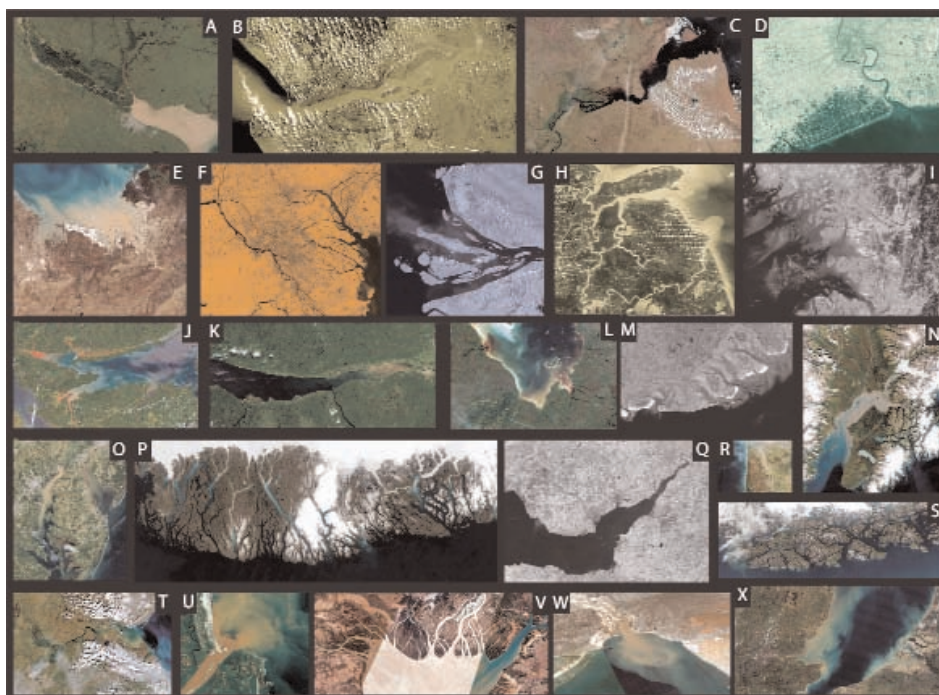
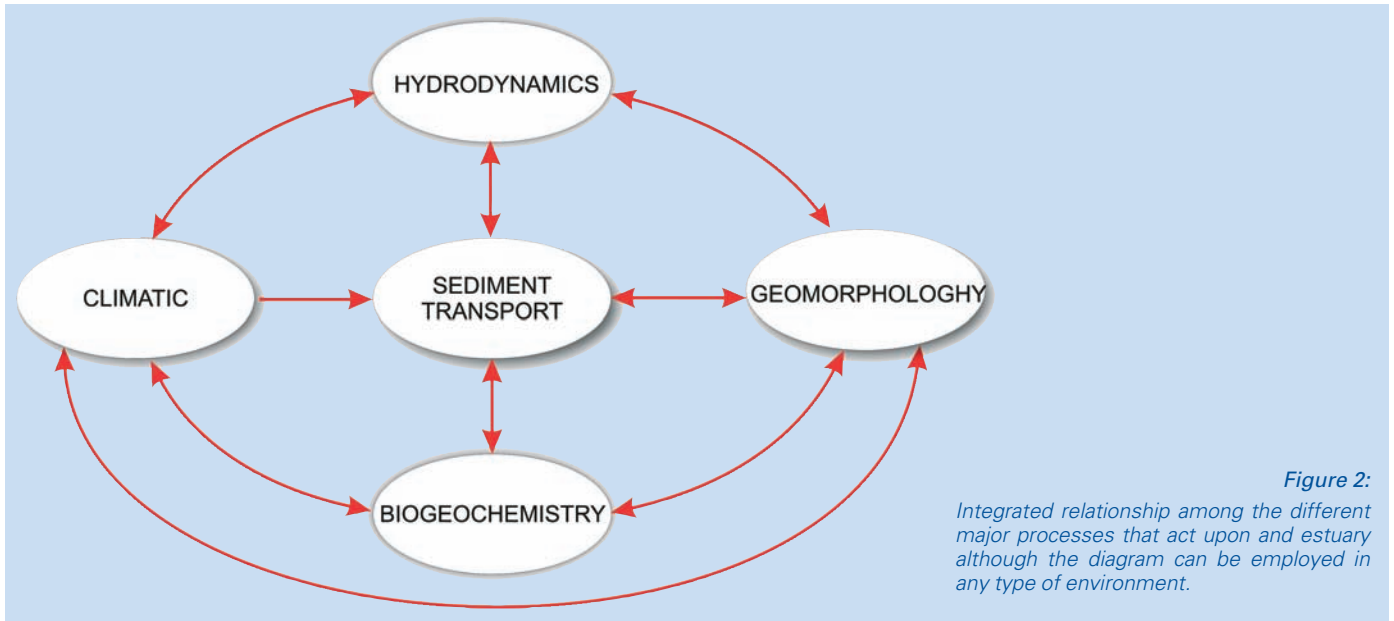


Figure 2 highlights the main controls that act upon an estuarine environment. Geomorphology is the basis upon which all other factor that controls the initial condition upon which the estuary formed and remains a controlling factor influences all other forces. Many estuaries have evolved from former valleys with diverse origins (Perillo, 1995) that have been inundated by sea level rise within

the last 8000 years (Wolanski, 2007). The exception being fjords, whose existence was influenced by the location and dynamics of ice sheets and ice caps, and occupy coastlines of the world rise was partly balanced by isostatic rebound of land masses resulting in a relatively sea level drop over the last 12000 years (Syvitski and Shaw, 1995).



Geomorphology is the “bottom” boundary condition that must be described in order to achieve the best results of a numerical simulation. Climate forces (i.e., wind, precipitation) and hydrodynamic forces (i.e., tides and tidal currents, waves, river discharge) are closely intertwined, but act on the geomorphology of the estuary in a non-linear fashion with regard to the fate and transport of sediment. Sediment is moved from one place to another, implies that geomorphology has changed, and thus the bottom boundary condition, along with inducing a new hydrodynamic boundary layer (Perillo, 2003). Estuaries are constantly subjected to changes in their geomorphology, at the scale of mm and seconds. Over time, these imperceptible changes cumulate to larger macro-scale changes perceived by humans, sometimes passing over some irrecoverable threshold (van Koppel et al., in press) and inducing a change in “state”.

The biogeochemistry factor includes all biological activities and chemical processes that act in an estuary. Plants and animals have complex interplay that can be summarized by the trophic chain, but even if there is no actual direct involvement in feeding between some species there is also other symbiotic relationships that affect the geomorphology of the estuaries. In essence, plants and animals, at all scales, modify the geomorphologic, hydrodynamic and even climatic conditions that prevail in an

estuary both in constructive and destructive ways. For instance, certain benthos may bioturbate the sediments making them more readily available for transport while at the same time by segregating mucous material that binds sediment thereby requiring much larger shear stress to initiate sediment movement. Estuaries are thus very complex entities subject to a wide spectrum of interactions and inhabited by species accustomed to large spatial and temporal gradients in the controlling environmental variables. When confronted to major impacts, estuaries tend to be resilient compared to other sedimentary environments subjected to less stressful conditions.

The third and last meeting of the SCOR-LOICZ-IAPSO WG 122 on “Mechanisms of Sediment Retention in Estuaries” was held 23–25 September 2007 at INSTAAR (University of Colorado at Boulder, USA), hosted by the Community Surface Dynamics Modeling System (CSDMS) Integration Office. The workshop had this integrated view of the estuaries as background to advance towards an understanding of sediment behavior in them.

The analysis and discussion of a series of key issues that were identified along the previous meetings and exchanges made in between meetings by the members of the WG included:

- Sediment input to estuaries under human influence
- Morphodynamics and evolution of estuaries
- Sediment-biological interactions
- Estuarine hydrodynamics
- Relative sea level change
- The physics and models of sediment budgets in estuaries
- Socioeconomic impact of changes in estuarine sedimentation.

Some of the main conclusions reached from the discussions in the meeting can be summarized as follows:

- Estuaries are being seriously affected by climatic and human impacts, as manifested by changes in the level of sediment input from the land and sometimes from the sea, and through sediment redistribution within the estuary.
- Some estuaries are starved of riverine sediment due to dams; others are enriched in sediment input such as through land clearing or glaciers retreat; others are sinking due to excess groundwater extraction.
- There are various scales from seasonal to millennia that are superimposed in the evolution of the mechanisms of sediment retention in estuaries, impacting the way the evolution of an estuaries geomorphology.
- The role of relative sea level has not been adequately addressed in our interpretation of an estuary's vulnerability.
- Increased storminess and a rise in sea level from climate change, partially or wholly man-made, may further destabilize an estuary.
- Some mature estuaries may have natural cycles, possibly tens to hundred of years in duration, with alternate periods of prevailing deposition and erosion for the whole system. Such estuaries are thus periodically rejuvenated by climatic events.
- Some estuaries are changing from exporter to importer and vice-versa due to human impacts.
- Present numerical models are not capable of predicting estuarine evolution over long periods (hundreds to thousands of years), as there remain many problems in defining and quantifying the conditions at the open boundaries. The future may be to advance toward coupling models operating across different spatial and temporal scales. Behind each model lies commonly used concepts like tidal pumping and scour and settling lags that require further improvements.
- The use of sediment core dating for estimating estuarine sediment accumulation rates and their temporal and spatial changes is important for the proper assessment of the sedimentological and morphological state of estuaries. Such accumulation estimates will also be useful in the process of assessing the results from numerical models being used to monitor changes.
- There is a need to analyze the sediment dynamics in estuaries within reaches rather than as a whole system, to quantify the internal redistribution of sediment within estuaries and to differentiate this from net sediment inflows/outflows at the open boundaries of the estuaries
- Although there has been significant progress, there is still considerable lack of integrated, multidisciplinary studies considering the biological-physical interaction in estuaries in general, and in wetlands in particular, with the sediment transport processes and modifications in the geomorphology and, as a result, the evolution of habitats.

References

- Perillo, G.M.E. (1995): Definition and Geomorphologic Classifications of Estuaries. In: Perillo, G.M.E. (ed.): *Geomorphology and Sedimentology of Estuaries*. Development in Sedimentology 53, Elsevier, pp. 17–47.
- Perillo, G.M.E. (2003): *Dinámica del Transporte de Sedimentos*. Asociación Argentina de Sedimentología, Publicación Especial Nro. 2, La Plata, 201 pp.
- Syvitski, J.P.M. and Shaw, J. (1995): Sedimentology and Geomorphology of Fjords. In: Perillo, G.M.E. (ed.): *Geomorphology and Sedimentology of Estuaries*, Development in Sedimentology 53, Elsevier, pp. 113–178.
- van de Koppel, J., Tett, P., Naqvi, W., Oguz, T., Perillo, G.M.E., Rabalais, N., Ribera d'Alcalà, M., Jilan, S. y Zhang, J., (in press). Threshold Effects in semi-enclosed Seas. In: Malanotte Rizzoli, P., Melillo, J., Sundby, B. y Urban, E. (eds.): *Dynamics and Vulnerability of Semi-enclosed Marine Systems: The Integrated Effects of Changes in Sediment and Nutrient Input from Land*. Island Press.
- Wolanski, E. (2007): *Estuarine Ecohydrology*. Elsevier. 157 pp.



Priority Topics

PRIORITY TOPIC 1

Linking social and ecological systems in the coastal zone

ECOSUMMIT 2007 in Beijing, May 22–25, 2007

Social-Ecological Systems Analysis in Coastal Regions: Beijing Symposium

Symposium Organizers: Bernhard Glaeser, Marion Glaser, Gesche Krause

The ECOSUMMIT 2007 in Beijing in May 22–25, 2007, hosted the LOICZ symposium “Social-ecological systems analysis: The Way forward in the Anthropocene”. Conceptual introductions to Social-Ecological Systems Analysis and to Integrated Coastal Zone Management were followed by regional analyses from Indonesia, Germany, China, India and Brazil.

The intention of this first symposium was to establish a common conceptual framework to generate relevant knowledge to steer human-nature relations in the coastal zone into more sustainable directions. Contributions in Beijing focused on:

- 1) the definition of “Social-Ecological System” (SES) in the regional studies
- 2) the drivers of the studies SES and possible future scenarios
- 3) Sources and methods of identifying resilience, vulnerability, adaptability and transformability
- 4) Recommendations for steering the SES into more sustainable trajectories.

The contributors defined their study SES either as multi-use spatial units, as problem/sector focused or along administrative/social territorial boundaries. Most speakers clearly identified system drivers at various different system scales. System resilience and vulnerability were interpreted in the ecological as well as in the social and economic sense. While some contributors also took a systems point of view, vulnerability, resilience and adaptivity capacity were examined in relation to major types of change such as disasters, natural dynamics, and degradation as well as policy interventions.

The question of how to steer a social-ecological system into more sustainable directions with SES analysis using concepts such as vulnerability, resilience, adaptivity and transformability produced a variety of responses. As major sources of SES resilience we identified the capac-

ities to cooperate, to combine knowledge systems and to communicate. Technical, natural-science based approaches which are able to stimulate nature’s ability to produce desirable outputs were also identified as sources of resilience.

Further LOICZ symposia on the theme of social ecological systems analysis in coastal areas take place at:

- The SHE XV Conference “Local Populations and Diversity in a Changing World” in Rio de Janeiro, Brazil, October 3–7, 2007 (see below)
- The 4rth IGBP Congress “Sustainable Livelihoods in a Changing Earth System” in Cape Town, South Africa, May 5–9, 2008
- The Annual Conference of the German Society for Human Ecology (DGH), “Human-Nature Interaction in the Anthropocene: Potentials of Social-Ecological Systems Analysis”, in Sommerhausen, Germany, May 29–31, 2008
- The IHDP 7th Open Meeting “Social Challenges of Global Change” in New Delhi, India, October 16–19, 2008.

2nd LOICZ Symposium on “Social-Ecological Systems Analysis”

at the International Conference of the Society for Human Ecology (SHE), Rio de Janeiro, 4–7 October, 2007

Symposium Organizers: Bernhard Glaeser, Marion Glaser, Michael K. Orbach

Scope, presentations, discussion

In coastal regions all over the globe, transformation, transition and change are determined by interactions between humans and nature. Natural and societal dynamics therefore need to be considered in conjunction.

This symposium, which was held in three sessions, was a follow-up of the LOICZ symposium “Social-ecological Systems (SES) Analysis: The Way forward in the Anthropocene?” conducted for Priority Topic 1 “SES Analysis” in Beijing, May 2007. It assessed, compared and attempted to integrate possible future transformations of coastal social-ecological systems (SES) and their analysis capacities. The analyses presented in this symposium adopted the view that human-nature relations are best understood by considering them as complex social-ecological systems. This provides the basis to position the increasingly dense and intensive interrelations between humans and coastal ecosystems at the centre of our investigations.

Fifteen presentations represented Asia, South America, North America, and Europe, including three presentations each from Brazil and China. Each presenter had been asked to address some predefined questions, such as defining SES, its key concepts and its drivers. The main theme of SES analysis was organized into three sub-themes, featuring the understanding and planning of SES, the issues of inter- and transdisciplinarity, as well as people in rural communities. Local and regional case studies, supra-national European perspectives, and conceptual ideas were presented. The latter included the divide of science, policy/management, and practice; lifestyles and values; the problem of spatial scales; cultural barriers, scenario building, and different knowledge systems.

Questions of methodology were taken up in the general discussions. Is there a way to simplify complex systems? Theoretical concepts should be used in a much stronger manner. Scenarios-as dynamic models-do not predict the future; they simply highlight potential pathways likely to happen in dependence on predetermined societal priorities. Scale issues make it difficult to include stakeholders as they are mostly identified at the administrative level only. And how do we model qualitative properties, such as trust and values? It was concluded that a common language and the creation of social capital are the key issues to advance SES.

Conclusions

The Rio Second LOICZ Symposium on "Social-Ecological Systems Analysis" provided a good variety of case studies. All presentations attempted to answer the lead questions. Some of the presentations went beyond the case study format and explored SES in a more systematic way. This is our future task. Modeling SES is one way to approach that goal. We may group the texts according to the lead questions. And we may ask:

- What are the commonalities and the differences?
- Which questions were not answered and why?

Further LOICZ symposia on social ecological systems analysis in coastal areas will be organized at:

- The 4th IGBP Congress "Sustainable Livelihoods in a Changing Earth System" in Cape Town, South Africa, May 6–9, 2008
- The Annual Conference of the German Society for Human Ecology (DGH), "Human-Nature Interaction in the Anthropocene: Potentials of Social-Ecological Systems Analysis", in Sommerhausen, Germany, May 29–31, 2008
- The IHDP 7th Open Meeting "Social Challenges of Global Change" in New Delhi, India, October 16–19, 2008.

Contact:

Bernhard Glaeser (bernhardglaeser@gmail.com) and Gesche Krause (gesche.krause@zmt-bremen.de)

PRIORITY TOPIC 2

Assessing and predicting impacts of environmental change on coastal ecosystems

Recent activities under PT 2 concentrate on two directions. First an extended review and scientific discussion of the LOICZ Biogeochemical Budgeting Methodology is being edited by Dennis Swaney. It draws on comments and suggestions of a global group of scientific peers. The document is expected to be ready for publishing in the 1st half 2008.

Nutrient watershed accounting and future avenues for biogeochemical assessment and modeling have been explored by international groups of experts which met in January 2007 in Paris (see also INPRINT 2007/1) and associated to the recent ERF Meeting in Providence, Rhode Island, November 2007 respectively. A special issue from the first activity is under development (publishing expected end 2008) and a Providence report is under preparation. INPRINT 2008/1 will highlight specific progress under PT 2 in more detail.

PRIORITY TOPIC 3

Linking governance and science in coastal regions

2nd LOICZ Workshop on Coastal Governance, 1–3 May, 2007, University College, Cork, Ireland

"How can comparative analysis inform the improvement of the governance of human activities in changing coastal ecosystems?"

The second LOICZ sponsored workshop to continue development of a concept paper on the above was successfully held in Cork, Ireland between the 1st and 3rd May, 2007. The event which was hosted by the Coastal and Marine Resources Centre (CMRC) in University College Cork and was opened by Michael Murphy, President of UCC who welcomed the participants wished them luck for what he felt was "as practical initiative that can only enhance future coastal management".

This small focused group had first met in Rhode Island in November 2006 and comprised participants who, whilst based in North America, Mainland Europe and Ireland, have a wealth of expertise gained in coastal governance from sites across the globe. The sometimes very lively, debate focused on aspects ranging from methods to



assess the status of coastal governance internationally through to deciding the principle hypotheses for this actual research. Whilst there wasn't always consensus on particular aspects of the debate it was unanimously agreed that there was a need for improved governance in the coastal zone. To compliment the workshop a boat tour was organized so that participants could experience first hand aspects of local governance in Cork Harbor and contrast this with their collective experiences from other regions of the world.

Significant progress was achieved during the meeting and various targets including the development of governance baselines for four representative sites and the preparation of a methods guide were agreed. The success of these workshops to date is reflected by the group's determination to publish an initial journal document outlining the process to date and the desire to meet again in Miami early in 2008.



Left to right – Jeremy Gault (University College Cork), Juergen Weichselgartner (LOICZ IPO), Liana McManus (University of Miami), Michael McClain (Florida International University), Val Cummins (University College Cork), Andreas Kannen (GKSS Research Centre), Timothy Hennessy (University of Rhode Island), Stephen Olsen (University of Rhode Island) and Mark Mellett (Irish Naval Service).

Initial Meeting to Plan the Training of Trainers Event

Preparation for an Assessment of Coastal Governance in Latin America, Miami, USA, August 29–31, 2007 – a Summary

Overview

The LOICZ Priority Topic 3 Working Group, as set forth in progress reports and statements to the SSC, has decided to make its first regional assessment of the status and features of coastal governance in Latin America. An initial focus on Latin America enables us to build on the

initiative already underway sponsored by EcoCostas (a regional NGO based in Ecuador), with support from the URI Coastal Resources Center and the AVINA Foundation. EcoCostas has assembled a network of leaders working to advance effective governance in a variety of coastal settings in eleven countries in that region. A version of the “governance baselining process” has already been initiated and this provides us with a network of practitioners who are already familiar with the conceptual frameworks being further developed by Working Group 3. LOICZ, with contributions from IAI and IHDP, is providing funding for a Training of Trainers (TOT) to be conducted in the last week of November of this year and has committed to providing similar funding for an event in 2008 in which the same group of practitioners will engage in a cross-project analysis of their sites and their collective experience. The materials generated through this process will be the basis for the first LOICZ regional assessment of current coastal governance practices.

Over the past several months the opportunity arose to complement the process of developing the regional governance assessment with a capacity building program on the governance dimensions of coastal change and coastal stewardship. This would be in the form of a certification program for senior practitioners. This additional dimension enables us to access funds provided through the current Cooperative Agreement between the CRC and USAID and the AVINA Foundation. In consultation with Chairman J. Pacyna and the LOICZ IPO we have agreed to integrate the certification and the baselining process. This collaboration provides Spanish language trainers and analysts at CRC who will contribute to the effort and provides additional funding for the TOT and cross project analysis events. Very importantly, a combination of AVINA and CRC/USAID funding will provide for a second TOT event in the first half of 2008 that will enable the representatives of the various sites to refine, improve and further develop their individual case studies. An additional benefit of these arrangements is that we will be linking to a parallel certification process being developed with CRC's regional partner in East Africa. This is the Western Indian Ocean Marine Scientists Association (WIOMSA). The WIOMSA certification is more narrowly focused and is currently directed only at those involved in the management of Marine Protected Areas. We are hoping to exchange materials and the certification processes among the two regions once they are developed.

Objectives of the Miami Planning Meeting

This event was funded primarily by LOICZ with some additional contributions from CRC/USAID and AVINA. The meeting was held in Miami in order to minimize the travel costs of the participants – Miami being a regional hub for airlines. Thanks to Liana McManus a meeting room was

provided at the Rosenstiel School for Marine and Atmospheric, University of Miami. The meeting was conducted in Spanish. The fundamental purpose of the meeting was to design the November TOT and the overall process by which a set of governance baselines will be prepared in a manner that will facilitate a subsequent cross-project analysis. The major topics were:

- Development of a set of Principles that provide the foundation for more efficient and responsible coastal governance with the capacity to respond to the impacts of global change.
- The design of three linked events that provide the dual purpose of a certification process for senior practitioners and the generation of governance baselines for the sites in which they are operating.
- Discussion of the strategic issues raised by building and sustaining a network of practitioners in Latin America dedicated to the stewardship and effective governance of coastal ecosystems.

Progress Made

The first day of the meeting was dedicated to an overview of the purposes and the structure of the combined baseline preparation/analysis/certification process. Beginning on the first day and continuing through the second, two working groups to (1) outline the objectives, structure and content of the three events and (2) develop text on the scope and format of the Principles. Michael McClain, who is a member of LOICZ Group 3 (and fluent in Spanish), joined the TOT design group on Day 2 and agreed to assume responsibility for a module in the TOT that will introduce the methods for developing future scenarios for coastal watersheds as these are suggested by global change.

In the third Day we added a discussion on the strategic issues raised by strengthening and sustaining the regional network of practitioners. All products are in Spanish and will be refined through electronic discussions over the next month. A summary of the refined outcomes will be distributed in English when they are completed.

Both the Principles and the TOT/ baseline preparation process draws heavily from the draft "Why and How of a Governance Baseline" discussed at the second meeting of LOICZ Working Group 3 in Cork, Ireland earlier this year. A second draft of this document (in English) will be distributed this month. The Principles will be incorporated into this second version.

Next Steps

The following must be completed by mid December:

1. Complete and distribute the overall design of three events that will produce the materials for a regional assessment of current coastal governance.

2. Detail the design of the first TOT to be held in Guayaquil Ecuador, November 27 through December 1.
3. Complete a second draft of the "Why and How of a Governance Baseline".
4. Complete one or more examples of completed governance baselines to be used as a reference point at the November TOT.
5. Schedule the third meeting of LOICZ Working Group 3 for early 2008 to review the results of the initial TOT and review the additional steps to be taken to prepare the portfolio of case studies in 2008.
6. Develop of the standards for a certification program and the logistics of certifying an initial group of senior Latin American practitioners. These elements will be funded by CRC/USAID and the AVINA Foundation.
7. EcoCostas will secure commitments from the participants in the baselining and certification process and will make the logistical arrangements for the November 07 TOT.

Participants

From LOICZ Group 3:

- Stephen Olsen, CRC, URI
- Michael McClain, FIU

From CRC:

- Don Robadue
- Glenn Page

From the EcoCostas Network:

- Emilio Ochoa, Ecuador
- Paola Garzon, Ecuador
- Agnes Saborio, Nicaragua
- Patricia Macluf, Peru
- Machangeles Carvajal, Mexico.

Activity Reports

The IMBER/LOICZ Continental Margins Open Science Conference, 17–21 September, 2007, China Eastern Normal University, Shanghai

Continental margins play a key role in Earth System functioning, by contributing significantly to the life support systems of most societies. The coastal system is experiencing natural pressures, such as atmospheric and open ocean-shelf exchange, that are also modified by regional and local and human forcings. Larger scale forcings include proximity to large river plumes, physiography of the continental shelf, and human forcings that modify atmospheric deposition across broad shelf areas. Local to



regional forcings include the variety of growing land and sea use. These global, local, and human pressures interactively impact on biogeochemical cycles, geomorphology and the marine food webs and have direct consequences for society.



IMBER and LOICZ co-sponsored The Continental Margins Conference that was held at the Zhong Shan North Road Campus of the East China Normal University (Shanghai, China) on September 17–21, 2007.

The overall goal of this conference was to provide a discussion platform for highlighting the most recent advances in coastal biogeochemical cycles and ecosystems research and try to identify emerging directions and future research challenges.

The aims of the Conference were to estimate the relative importance of the changing forcings-natural and human and determine how much changes in shelf ecosystems can be attributed to the respective forcings. The Conference, while building on biogeochemical advances from programs such as JGOFS and LOICZ in its first phase, aims to take the next steps:

- linking the biogeochemical cycles of the coastal and open oceans,
- linking organisms, including higher organisms, to biogeochemical processes, and
- moving past the present-day status and incorporating response/prediction to the global and local changes.

A total of 110 scientists from 25 different countries attended this conference. Much of the success of the conference relied on great organisation from the local organizing committee (especially the invaluable student helpers), the leading IMBER IPO assisted by LOICZ and the wonderful Chinese food. Financial support for the conference was also provided by the East China Normal University, the Chinese Ministry of Education, the National

Science Foundation of China and the Shanghai Municipality. The conference also benefited from travel grants for eight scientists from Brazil, China, India and Ukraine provided by the Scientific Committee on Oceanic Research (SCOR) through a grant from the U.S. National.

GWSP/LOICZ/CSDMS Workshop “Dynamics and Vulnerability of River Delta Systems” in Boulder: Developing a Research Agenda and Implementation Plan for Vulnerable Deltas, 26–28 September, 2007

From New Orleans to Bangkok, from the Dhaka to Alexandria, more than 350 million people worldwide live on deltas. At least the same number depend on deltas for their livelihoods plus hundreds of millions more people affect, and are affected by, deltas every day. As an interface between bodies of water and land, deltas represent the terminus of rivers, rich ecosystems upon which our earliest societies have inhabited.

Deltas are shaped by physical, biological, and social processes. Physical processes include tides, waves, currents, flow rates, and rainfall. Ecosystems affect erosion, create microclimates, and contribute nutrients and nutrient cycling. People dredge and dig, redirect rivers and build structures, introduce and exterminate biota. Different cultures have different perceptions of risks and opportunities while fulfilling different needs and desires for livelihoods and luxuries.

These complexities lead to significant challenges in understanding and managing deltas and their regions of influence. They also highlight the dangers facing deltas. Poorly constructed buildings are raised within the river and coastal floodplains and on delta soils prone to liquefaction during earthquakes and coastal flooding. Endangered species find homes in deltas caught between interests vying for protected areas, resource extraction, and subsistence living. Environmental changes far away – for instance, deforesting slopes and applying fertilizers within a river's drainage basin – alter a delta's structure and functions.

To understand and to develop solutions for these threats and vulnerabilities, a scoping workshop was held in Boulder, Colorado, USA in September 2007 on “Deltas at Risk” or, more formally, “Dynamics and Vulnerability of River Delta Systems”. Research and application challenges from deltas were explored by twenty-five attendees from four continents. From morphodynamic modeling to implementing disaster risk reduction and to overcoming legal challenges in transboundary regions, diverse topics were examined in order to establish the pressing research and application questions and the data and techniques available for tackling those questions.

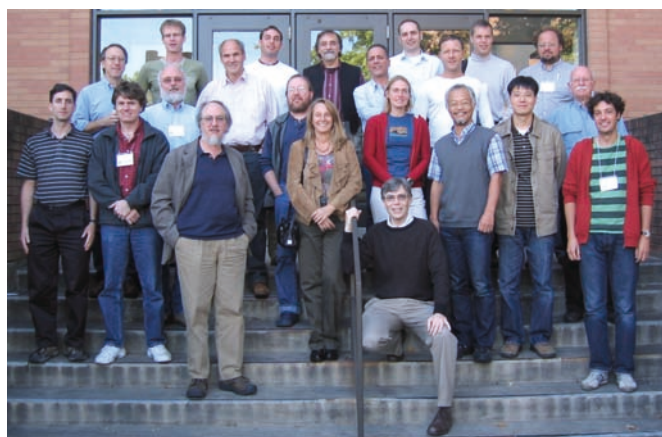
The workshop was hosted by INSTAAR – an Earth and Environmental Systems Institute at the University of Colorado, and was sponsored by the Global Water Systems Project (GWSP), Land-Ocean Interaction in the Coastal Zone (LOICZ), and the Community Surface Dynamic Modeling System (CSDMS). Participant presentations covered theory and practice, with case studies as disparate as the Danube and the Indus. The history of deltas was examined, looking back decades and millennia while similar timeframes for the future were considered. Delta demographics, ecosystems, morphology, formation, land-atmosphere-ocean interactions, pollution, governance, and management regimes were covered.

Many basic traits of deltas are the subject of ongoing and needed work, including classification and description methods. Reams of data are available—from three-hourly ocean wave heights to indigenous knowledge digital libraries, from topography and bathymetry to poverty indices and happiness indices—but few databases provide the material on a delta-by-delta basis. And a delta is not isolated. These data are also needed for deltas' catchments and drainage areas.

Scale also emerged as a prominent issue. The appropriate space and time scales for observing and modeling basic delta functions, such as nutrient flows and transformations, are not fully understood. Yet the appropriate scales are needed for establishing baselines to monitor changes, for knowing sources and sinks, and for being able to correlate micro-scale nutrient changes with macro-scale changes to the delta's morphology and ecology. The establishment of appropriate scales would help in our understanding of a delta's development, lifetime, and devolution, along with impacts on a delta's biology and people.

The scales for human interaction with deltas are not well defined. Activities including river and coastal engineering and farming affect a delta's function, whether they take place inside or outside the delta. Delta cities create their own microclimates while human-caused climate change has left few deltas, even those isolated from settlements, untouched. Computing power, data, and conceptual understanding are not always sufficient for resolving such scale issues either theoretically or for specific case studies.

The inseparability of humans from their environment, exemplified by the strong shaping of deltas by societies and vice versa, raised further questions about the data, modeling, and governance and decision processes available for tackling delta vulnerabilities. How could scientific and traditional knowledge bases and techniques be applied to inform and affect individual and collective behavior? How much science and how much tradition are now used, and how much of each is needed, for decision analysis and decision-making? How can uncertainties and contrary views be communicated and incorporated without inhibiting delta management?



Participants of the GWSP/LOICZ/CSDMS Workshop in Boulder, Colorado.

How could human and natural influences and signals be separated in deltas to better understand how they influence each other?

Answering such questions feeds into describing how deltas work and why they are important, which in turn promotes improved management of them. To make that link, many options are available, covering GIS, role-playing games, participatory processes, inventorying and surveying techniques (for physical, biological, and social processes), expert elicitation, model coupling techniques, and methods for visualizing observations and model results. Research is also needed for developing, monitoring, and evaluating good practices for applying and combining these options for particular deltaic ecologies and societies.

Many more scientific questions exist, along with the challenges of converting knowledge into policy and action. These will be articulated in a White Paper currently being developed by the workshop participants in order to set the agenda for delta research and application of that research. That way, a coherent, comprehensive, and doable plan will be available, not only for adding to delta science but also for ensuring that the science is useful and useable.

“Arctic Coastal Zones at Risk” – a physical and socio-ecological perspective on Arctic Coastal Change

**1st LOICZ/IASC Workshop in Tromsø, Norway,
1–3 October, 2007**

**Symposium Organizers: Volker Rachold (IASC),
Hartwig Kremer (LOICZ), Götz Flüser (GKSS, LOICZ) and
Georg Heinrich Hansen (NILU)**

As an extension of LOICZ activities into the Arctic, LOICZ, together with the International Arctic Science Committee, IASC, initiated a workshop in Tromsø, Norway, focusing on the ecological and human dimensions of coastal change and warming. The workshop was kindly



hosted by the Arctic branch of the Norwegian Institute for Air Research, NILU, based at the Polar Environmental Centre.

Primary aims of the workshop were first, to gather and synthesize our state of the art understanding of those processes, pressures and responses that affect or take place in Arctic coasts and subsequently to develop a strategy for a regular reporting on the socio-ecological system state and future scenarios of Arctic coastal zones including land and sea use.



Helga Pedersen, Norwegian Minister of Fisheries and Coastal Affairs (left) and Gunn-Britt Retter, representative of the Saami Council opening the IASC-LOICZ workshop "Arctic Coastal Zones at Risk", 1–3 October, 2007, Polar Environment Center Tromsø. (Photo: Leslie King)

53 participants from 10 mostly Arctic bordering countries followed the invitation. The sequence of high-level invited talks was opened by the Norwegian Minister of Fisheries and Coastal Affairs, Helga Pedersen and Gunn-Britt Retter, representative of the Saami Council, Utsjoki, Finland. Central to their talks where the interplay of environmental change and new use patterns and future scenarios considering also the socio political dimensions. The key role of traditional indigenous knowledge in adaptive capacity and system resilience was highlighted.

The interdisciplinary character of the workshop was underlined by the key notes which looked into

- Arctic Environmental Politics,
- Geophysical Changes, Changes in Arctic Hydrology and
- the Role of Large Marine Ecosystems (LMEs) as a scale of socio ecological system change and governance;
- Toxic Substances in the Arctic;
- Indigenous Cultures under Pressure in the Arctic Coastal Zone;
- Arctic Marine Shipping Assessment and finally
- The Role of Aquaculture at the Norwegian Coast.

These opening presentations set the stage for six working groups which emphasized in detail current priority issues of physical, ecosystem and sociological changes in the Arctic; complementing groups synthesized their discussions into new aspects of advanced modeling, system vulnerability and governance. Central in the discussions were questions dealing with approaches and options for a coupled socio ecological analysis of the Arctic coasts and change and how to initiate a regular reporting process.

This reporting process is anticipated to draw upon updates and findings in existing reports namely the Arctic Climate Impact assessment, ACIA, and the Arctic Human Development Report, AHDR, but with special focus on coasts and triggered by the alarming news on accelerating climate change particularly affecting Arctic regions. The current working title for the report reads: *Arctic Coasts at Risk – What's at stake?*

Workshop Proceedings are already available (along with other workshop documents:

<http://w3k.gks.de/events/arctic07/>

and will be published in January when the next step will be to refine the reporting strategy and approach and to identify writing teams. This will be done again jointly supported by LOICZ and IASC during the Arctic Frontiers conference in Tromsø 20–25 January, 2008 (www.arctic-frontiers.com).



The old harbour of Tromsø. (With kind support of Destinasjon Tromsø: Photo © Bård Løken.)

The impressive scenery of the surroundings of Tromsø (located at 69 °N, north of the Polar Circle) gave an impressive background to the scientific work. The workshop was organized by LOICZ and IASC, and supported by the Norwegian Research Council, the International Human Development Program on Global Environmental Change, IHDP. It was endorsed by the Arctic Monitoring and Assessment Program, AMAP, of the Arctic Council and the International Permafrost Association, IPA.

**Ocean Colour 2007 Africa,
24 September – 5 October, 2007,
Mombasa, Kenya**

Within the 7th Framework Programme, the Joint Research Centre (JRC) is building the observation, monitoring, modeling and analytical capacity of an 'ACP (African, Caribbean, Pacific) Observatory for Sustainable Development'. The system will provide ready-to-use information on environment, food security and crisis issues on which to base appropriate policy responses.



Roland Doerffer, GKSS, with Participants of "Ocean Colour 2007 Africa".

The implementation of such an Observatory involves both European based activities as well as direct capacity building in ACP countries. Accordingly, through its Action 'Monitoring Natural resources for Development Co-operation' (MONDE), the *Global Environment Monitoring Unit (GEM) of the Institute for Environment and Sustainability (JRC-IES)* has offered a 2-weeks training course on:

"Methods and Applications of Ocean Colour Remote Sensing in African Coastal and Regional Seas".

This course has been designed to provide the theoretical basis of ocean colour satellite measurements, as well as key applications in monitoring and managing the coastal zone, in protecting the marine ecosystems and their resources.

The course has been organized jointly by the IES-GEM Unit and the Kenya Marine Fisheries Research Institute (KMFRI) with further partnership from:

- Land-Ocean Interactions in the Coastal Zone (IGBP-LOICZ), and
- International Ocean Colour Coordinating Group (IOCCG);
- Group on Earth Observation (GEO International);
- Western Indian Ocean Marine Science Association (WIOMSA);
- Regional Programme for the Sustainable Management of the Coastal Zones of the Indian Ocean Countries (ReCoMap);
- Benguela Current Large Marine Ecosystem Programme (BCLME);
- Indian Ocean – Global Ocean Observing System (IOC Perth Office).

Further details:

<http://amis.jrc.ec.europa.eu/oc2007africa.php>
<http://amis.jrc.ec.europa.eu/>

LOICZ News

**We welcome two new SSC Members:
Marion Glaser**

Marion Glaser is a sociologist with an economics and political science background, trained at the University of Cologne, the London School of Economics and Political Science, and the University of Bath, U.K. She was researcher at the Overseas Development Institute in London and lecturer in Development Studies at Bath University, UK and then spent over 20 years living and working in various countries in the tropics and subtropics.

This included several years each in Bangladesh, Belize and Brazil.

Her work is concerned with human-nature relations and with nature-related human livelihoods and has an inter- and transdisciplinary character, involving co-



Marion Glaser

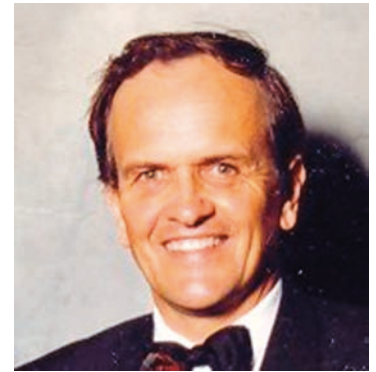


operations with natural scientists and/or engineers and utilizing interactive/participatory approaches. She has also worked in technical cooperation teams in agriculture, forestry, flood control and coastal planning and management with ministries and NGOs funded by German GTZ, the World Bank, the British ODA/DFID and as the team leader for a Strategic Planning Exercise for Oxfam International. In 1996, Marion became the senior social scientist at the Center for Tropical Marine Ecology (ZMT) in Bremen, Germany, initially to coordinate the socio-economic research group of the Brazilian Mangrove Dynamics and Management (MADAM) program (1996–2005). The foundation of the expanding Social-Ecological Systems (SES) Analysis Group at the Centre for Marine Tropical Ecology and her “Habilitation” (German professional qualification) from the Humboldt University in Berlin are some of the more academic outcomes of this “Brazilian period”. Her Habilitation topic, The social dimension(s) of ecosystem management Marion hopes to pursue in the LOICZ Scientific Steering Committee under LOICZ Priority Topic 1: Social-ecological systems.

Marion's years in Brazil provided her with a firm grounding in mangrove social-ecological systems. Her current work at the ZMT and at the University of Bremen includes the scientific coordination of a coastal management programme (Science for the Protection of Indonesian Coastal Ecosystems (SPICE) Cluster 6 “Governance and Management of Coastal Social-Ecological Systems”). This social-science led project works in a coastal lagoon, a river catchment area and a coral reef archipelago in three regions of Indonesia. Its major themes are participatory planning, environmental governance and transdisciplinary sustainability and resilience analysis. Marion undertakes regular postgraduate teaching assignments in Germany and overseas, has (co-)authored over 50 articles and books and is a reviewer for several interdisciplinary journals. Her most recent special interest is the assessment of the potentials of transdisciplinary agent-based modeling to capacitate the combination of different knowledge systems and more sustainable participatory management of coastal social-ecological systems. Together with a number of close colleagues, she coordinates an ongoing series of international symposia (Beijing, Ecosummit, May 2007; Rio de Janeiro SHE, October 2007; IGBP Cape Town, May 2008; IHDP New Delhi, October 2008, and a conference on coastal social-ecological systems (Sommerhausen, May 2008). The long-term objective of this work is the construction of comparative regional scenarios of coastal social-ecological change around the globe. The question of how transdisciplinary models or other approaches can combine different forms of knowledge on social-ecological dynamics and how such locally and regionally relevant models may then usefully be integrated into globally relevant scenarios is a central concern Marion brings into the LOICZ SSC.

Eric Wolanski

Dr. Eric Wolanski is a coastal oceanographer with 35 years experience. He now divides his time between Australian Institute of Marine Science, the ACTFR at James Cook University in Australia, and on-going collaborative research with the Universities of Florida and Hawaii on land-use impacts on lakes, mangroves, and coral reefs, with the Catholic University of Louvain on coral reef oceanography modeling, and with Tanzania National Parks with water resources management impact on wildlife.



Eric Wolanski

His research interests range from the oceanography of coral reefs, mangroves, and muddy estuaries, to the interaction between physical and biological processes determining ecosystem health. He has more than 300 publications including two papers in *Science*, one in *Nature*, and six books (*Physical Oceanographic Processes of the Great Barrier Reef*, CRC Press; *Oceanographic Processes on Coral Reef*, CRC Press; *Mangroven – Lebensräume zwischen Land und Meer*, Filander Press; *The environment in Asia Pacific harbours*, Springer; *The role of physical processes in mangrove environments*, Terrapub; *Estuarine Ecohydrology*, Elsevier).

Eric is a fellow of the Australian Academy of Technological Sciences and Engineering, the Institution of Engineers Australia, and l'Académie Royale des Sciences d'Outre-Mer. He was awarded an Australian Centenary medal, a Doctorate Honoris Causa, and a Queensland IT&T award for excellence. He is listed in Australia's Who's Who and he is an Erasmus Mundus scholar.

Eric is the chief editor of ECSS and WEM. He is a member of the editorial board of JCR, JMS, CSR and E&H. He is a member of the Scientific and Policy Committee of EMECS, he chairs the UNESCO-ROSTE estuarine ecohydrology task force for Europe, and he is a member of UNESCO-IHP estuarine ecohydrology task force and the NCEAS-based Ecosystem-Based Coastal Management Group (EBCM).

Eric would like to open a dialogue between LOICZ, EMECS, UNESCO-IHP, UNESCO-ROSTE, and EBCM to find common synergies amongst these organizations that are all striving for similar (but not identical) goals.

The backbone of LOICZ: Affiliated Projects

LOICZ has a mandate to address key issues of coastal change and use in the context of scenarios of future human activity and environmental change. LOICZ endorses and seeks to support both fundamental coastal zone research and research that synthesizes and up-scales results for dissemination within the scientific community, and outreach to policy makers and the public. An important part of this research is carried out by scientists who affiliate their projects to LOICZ thereby becoming part of the global network of LOICZ. These projects build the backbone for up- and down-scaling of LOICZ results and the LOICZ synthesis.

LOICZ provides a forum to assimilate, integrate and synthesize the outputs of its affiliated projects. Additionally, it provides an opportunity to communicate and disseminate these outputs making them available not only to other scientists, but also the public, decision-makers and managers. Information on affiliated projects is held in a central database that is accessible online through the LOICZ website. It makes basic information and regular updates available to the wider community as well as to LOICZ for its reporting requirements.

Once a project has been entered to the database by its Principle Investigator (PI), it will be reviewed by the IPO and the coordinator of the theme/topic it is contributing to most. As soon as the project is accepted it will appear in the public part of the database. This lean procedure allows LOICZ to maintain an up-to-date record of global research activity that relates to the LOICZ Science Plan as well as ensure that affiliated projects are given opportunity to fully participate in LOICZ activities such as workshops and joint projects.

Moreover, the database accomplishes an essential element that applies for all LOICZ interdisciplinary studies within and beyond the project namely data sharing and exchange. To facilitate this exchange LOICZ has developed a Data Policy to help affiliated projects and LOICZ to fully benefit from each other. Both documents, the Terms of Reference for affiliated activities and the Data Policy, can be found on the LOICZ website.

LOICZ protects its community members by restricting access to contact details in the public part of the

database. But every community member and person interested in the activities affiliated to LOICZ is invited to register and then view full contact details and be able to submit and edit own projects. As the database is linked to the LOICZ contact database, all newsletter recipients are already recorded. If you wish to receive your login name and password for the database, please do not use the form as shown below, but send us an email to loicz.ipo@loicz.org

Do we hold your current contact details?

To receive LOICZ INPRINT it is sufficient that we know your email address, or if you receive the newsletter in hard-copy your postal address. But there is much more information available at the LOICZ IPO that does not make it into the newsletter, for various reasons.

If you are interested in receiving information targeted to your field of expertise, please request your login details from us and update your profile online.

Registration in LOICZ database online

If you are already a member of the LOICZ community get your account from our administrator: [Contact Us](#)

TIP Fields with (*) - Value required

Title: * Name: * Surname:

* Organisation:

Department:

Position:

* Field Of Expertise:

Street: Phone:

Postal Code: * eMail:

City: FAX:

* Country: Second Phone:

Online Resource: Second eMail:

* Select one or more LOICZ Themes for your activities (required):

Theme 1 Vulnerability of coastal systems and hazards to society

Theme 2 Implications of global change for coastal ecosystems and sustainable development

Theme 3 Human influences on river basin - coastal zone interactions

Theme 4 Biogeochemical cycles of coastal and shelf waters

Theme 5 Towards coastal system sustainability by managing land - ocean interactions

get Newsletter per: eMail Alert

PDF

Hardcopy

Select one or more LOICZ Topic:

Topic 1 Link: social and ecological systems in the coastal zone

Topic 2 Assess and predict impact of environmental change on coastal ecosystems

Topic 3 Link: governance and science in coastal regions

Your login information: * Name:

* Password:

Registration form of the LOICZ database. Recipients of LOICZ INPRINT and other active or formerly active members of the LOICZ community should contact the IPO for registration. Everybody else is invited to fill in this form.



Call for research proposals concerned with Land-Ocean Interactions in the Coastal Zone

LOICZ seeks to expand its network of scientists by endorsing research activities concerned with any of its priority topics on a global, regional or national level. Within these topics LOICZ strives to develop:

- methodologies or models that allow data assimilation, processing and synthesis, including up and/or down scaling;
- scenarios of change and/or response to change in socio-ecological systems;
- scientific context for the evaluation of existing policies and structures;
- globally applicable tools for scientific synthesis, decision support and structure development; and
- dissemination interfaces to provide information and assist sustainable coastal development on appropriate scales.

To achieve this, **LOICZ is calling for proposals to bring high quality research activities into the LOICZ cluster of Affiliated Projects.** As well as fundamental science projects, LOICZ also seeks projects that have a multidisciplinary perspective, especially combining natural and social sciences. Projects can have global, regional or local scales and be focused on coastal sciences and/or coastal management. Projects that collaborate with other Earth Science System Partnership (ESSP) projects, especially with other Core Projects of IHDP and IGBP, are sought in particular, as well as projects that synthesize and analyze research outcomes already available or involve dissemination and outreach that will lead to better public knowledge. Details about projects already affiliated to LOICZ can be found in the LOICZ Project database accessible through the LOICZ website. Although LOICZ cannot offer funding to Affiliated Projects, its endorsement provides the following benefits:

- support in proposing for funding;
- promotion of the project and associated activities, its contributing team, outputs and outcomes through the LOICZ website and/or newsletter;
- contribution to workshops, conferences and meetings organized by LOICZ and hence establish linkages to other projects operating in similar fields and/or addressing similar issues; and
- access to a wide circle of information related to funding and the science community that is available through the LOICZ database.

Researchers whose work fits into the LOICZ portfolio are encouraged to submit proposals to the LOICZ IPO as soon as possible. The required form is accessible after registration to the LOICZ project database and additional information can be obtained from the LOICZ website or via contacting the LOICZ IPO.

LOICZ Nodes

New LOICZ Regional Node East Asia and LOICZ-Yantai International Seminar



On 23 September, 2007, a new LOICZ Regional Node East Asia has been established at Yantai, China. Accompanying the opening of the Regional Node, a first LOICZ-Yantai International Seminar on "Tackling Land Ocean Interactions on Regional Scale", was held at the Yantai Institute of Coastal Zone Research for Sustainable Development (YIC), China, from 23–25 September, 2007.

A main objective of the seminar was the identification of priority questions on regional scale that need immediate scientific attention within the following topics: ecosystem functioning and socioeconomic impacts in changing coastal zones, material fluxes and ecosystem response, and governance frameworks for ecosystem-based management, among others.

More information can be obtained from the local host, Professor Ping Shi (e-mail: pshi@yic.ac.cn), and from Mr. Cheng Tang at the secretariat (e-mail: ctang@yic.ac.cn).

IPO Notes

IPO staff changes**Back on board**

You might remember that I bid you farewell in this year's first newsletter when I left the IPO. I spent an exciting summer working in a grey seal conservation project and started my PhD at the National Oceanography Centre Southampton, UK, in October. My project deals with the impact of seagrass on waves and its implications for coastal protection. As both coastal ecosystems and wave climate are likely to change in the future due to global change, the topic is spot on in coastal management and links nicely with LOICZ science.

With LOICZ gathering momentum during its second phase, new tasks arose within the IPO. Therefore the team grew and new staff came on board to match the demand. But some tasks stayed the same throughout the time: Someone has to communicate with affiliated projects and provide them with useful information from the LOICZ network. And someone should encourage National Committees to become or stay operational to make LOICZ visible along the whole world's coast.



Maïke Paul

And that is why we decided for me to come back on board again and dedicate some of my time here in Southampton to LOICZ and its scientific community. I am looking forward to this task, especially as it will allow me to stay in touch with many of you.

Maïke

e-mail: maïke.paul@soton.ac.uk

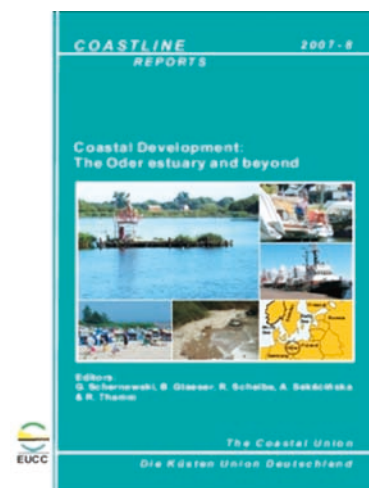
Publications

Coastline Reports 8 (2007)

G. Schernewski, B. Glaeser, R. Scheibe, A. Sekscinska and R. Thamm (eds.):

Coastal development: The Oder estuary and beyond

This report reflects the content of the second German-Polish Coastal Dialogue conference, 21–22 March 2007 in Miedzyzdroje, Poland, carried out within the research project ICZM-Oder. In the report, you will find results not only from the ICZM-Oder project but also other ICZM-related projects with a geographical focus on the Baltic and North Seas. With



respect to the focus themes, the report is subdivided into the chapters "The Oder estuary: results and perspectives", "preconditions and tools for coastal management" and "North and Baltic Sea experiences".

For ordering Coastline Reports 8 (25 Euro including postage, 15 Euro for members of Eucc Germany) please send an E-Mail with your addresses for delivery and invoice to: eucc@eucc-d.de.

The complete report can be downloaded as an Acrobat PDF-file: <http://www.eucc-d.de>

Furthermore, all papers are available as a separate download.

Bricker, S., B. Longstaff, W. Dennison, A. Jones, K. Boicourt, C. Wicks, and J. Woerner (2007):

Effects of Nutrient Enrichment in the Nation's Estuaries: A Decade of Change

NOAA Coastal Ocean Program Decision Analysis Series No. 26. National Centers for Coastal Ocean Science, Silver Spring, MD. 2007, 328 pp.

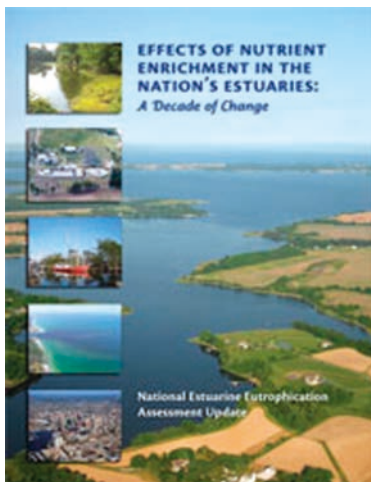
This recent publication provides a comprehensive assessment update of national US estuarine eutrophication and concludes in a set of management related recommendations which are:

- Reducing eutrophic conditions in estuaries requires coordinated and integrated action that balances management action, efficient monitoring to assess the effectiveness of the management, targeted research,



and a communication campaign aimed at engaging the broader community. Major recommendations are:

- Implement more aggressive management actions to reduce nutrients for improvements in eutrophic condition.
- Capitalize on monitoring technological innovations (e.g., observing systems, remote sensing, web resources) to improve comprehensive assessment of eutrophication status in a coordinated and timely fashion.
- Focus research on improving assessment capability, resolving uncertainty, and establishing criteria/thresholds.
- Engage resource managers, researchers, policy makers, and the community with frequent assessment updates at local, regional, and national levels.
- Develop tools to quantitatively relate the effectiveness of mitigation strategies in response to policy actions.



The book reflects various aspects of LOICZ related activities such as typology considerations in Chapter 6 and of course the biogeochemical budgeting and its further development (see Priority Topic 2). Various LOICZ colleagues contributed. It is available online under

<http://ccma.nos.noaa.gov/publications/eutrouupdate/>

AGUs' Global Biogeochemical Cycles – Special Collection provides an extensive overview of related scientific literature partly also originating in LOICZ affiliated projects such as Global-NEWS and others:

<http://www.agu.org/contents/sc/ViewCollection.do?collectioCode=GNEWS1&journalCode=GB>

Contact details:

Suzanne Bricker
Suzanne.Bricker@noaa.gov

The report is available at two sites online. The first is our NOAA site and the report is available to download by chapters, the second site listed below is the UMD site (Bill Dennison's group) and the report can be downloaded as one gigantic pdf:

<http://ccma.nos.noaa.gov/news/feature/Eutrouupdate.html>

<http://ian.umces.edu/nea>

Have you seen

Website of our SSC member Yoshi Saito:

<http://staff.aist.go.jp/yoshiki.saito/>

Science and management of estuaries and coasts

The Estuarine and Coastal Sciences Association (ECSA) and the Instituto Argentino de Oceanografía (IADO) announce the ECSA 44 Symposium: Science and management of estuaries and coasts: A tale of two hemispheres, to be held in Bahía Blanca, Argentina, from September 29 to October 3, 2008. The symposium is aimed at promoting a fluid exchange between specialists of different disciplines and from both hemispheres, working on estuarine and coastal issues. It will provide a stimulating frame for comparing results, and for discussing the ongoing scientific and management challenges, highlighting similarities and differences between northern and southern coasts and estuaries.

On behalf of the ECSA and IADO, the local Organization Committee invites you to participate on this event, which we envision will enhance communication among those working on both sides of the world, under different physical, biological, and social scenarios. Argentina welcomes you, and Bahía Blanca invites you to know our place and people. We are working to make sure you will enjoy an exciting and worthwhile meeting, and we hope you feel at home during your stay with us.

Deadline for Abstract submission: May 20, 2008

Deadline for early full registration: May 20, 2008

For more information regarding main meeting topics, abstract submission, registration, please look at our web page at <http://ecsa44.criba.edu.ar> or contact ecsa44@criba.edu.ar

We look forward to seeing you in Bahía Blanca,
The Organizing Committee

Final call

International Symposium on the Effects of Climate Change on the World's Oceans, Gijón, Spain (May 19–23, 2008)

- Past and future variability and change in ocean climate
- Interactions between climate variability and change and biogeochemical cycles
- Impacts of climate variability and change on the coastal environment

- Impacts of climate change on marine ecosystems: Present status of our understanding
- Scenarios-mitigation-adaptation of impact of future climate change on the marine environment: from regional to global scale.

Abstracts: January 15, 2008

Financial support: January 15, 2008

Registration reduced fee: February 15, 2008

Further information: www.pices.int

What's new on the web

Wind from Satellite Data

Demonstration of WiSAR in operational mode

WiSAR is a tool to retrieve high resolution wind fields from SAR

- capable of handling SAR data from the satellites ERS-1, ERS-2, RADARSAT-1 and ENVISAT,
- based on estimation of wind directions from linear features visible in the SAR image and wind speeds from the normalized radar cross section (NRCS),
- capable of distinguishing between wind and none wind induced features.

More Information:

<http://www.coastlab.org/wind.html>

coast.gkss.de/ksd/KSD_WiSAR_op.html

coast.gkss.de/ksd/KSD_dev_WiSAR.html

Asian Delta Web Page

<http://unit.aist.go.jp/igg/rg/cug-rg/ADP.html>

Coastal & Urban Geology RG Web Page

<http://unit.aist.go.jp/igg/rg/cugrg/index.htm>

Update us so we can update you

LOICZ INPRINT informs you about the LOICZ Project and its activities. But LOICZ has access to much more information and wants to make this information available to you as effectively as possible. To be able to provide you with LOICZ information that fits your expertise and interests most, we need input from your side telling us what your interests in LOICZ are and how we can contact you. Please complete the form on page 23.

Calendar

Wishing all of you a peaceful holiday season,

a Merry Christmas and

a Prosperous and Happy New Year!



**FROM ALL OF US
HERE AT THE LOICZ IPO**

2008

**International Conference on Deltas;
Bangladesh, January 6–13, 2008**

Deltaic Gateways: Linking Source to Sink. The Circular is available on these webpages:

Asian Delta Web Page

<http://unit.aist.go.jp/igg/rg/cug-rg/ADP.html>

Yoshi Saito's Web Page

<http://staff.aist.go.jp/yoshiki.saito/>

Institute on "The Asian Monsoon System: Prediction of Change and Variability"

The global change System for Analysis, Research and Trainning (START) and the Asia Pacific Network for Global Change Research (APN) invite applications to the Institute on "The Monsoon System: Prediction of Change and Variability" to be held at The East-West Center and the University of Hawaii at Manoa in Honolulu, Hawaii from 2–12 January, 2008.

Complete announcement and application download may be found on the START.

<http://www.start.org/curfinopp.html>

9. Conference of Meteorology-Climatology and Atmospheric Physics, May, 2008, in Thessaloniki, Greece

<http://icemte08.geo.auth.gr>

Contact:

Barbara Zinecker

Assistant to Prof. Dr. Martin Claussen

Max Planck Institute for Meteorology

Bundesstrasse 53

D-20146 Hamburg

phone: +49-(0)40-41173-226

fax: +49-(0)40-41173-350

e-mail: barbara.zinecker@zmaw.de

www.mpimet.mpg.de



4th IGBP Congress, "Sustainable Livelihoods in a Changing Earth System" to be held in Cape Town, South Africa from 5–9 May 2008

<http://igbp2008.co.za/index.php?id=1>

International Conference – Ecohydrological Processes and Sustainable Floodplain Management Opportunities and Concepts for Water Hazard Mitigation, and Ecological and Socioeconomic Sustainability. 19–23 May 2008, Lodz, Poland.

Under the auspices of International Hydrological Programme UNESCO.

<http://www.erce.unesco.lodz.pl/index.php?id=122&lev=1&t=2&nid=50>

Contact

Dr. Eric Wolanski

Australian Institute of Marine Science
PMB No. 3
Townsville MC, Queensland 4810, Australia

Ph: 07-47534243 Fax: 07-47725852

E-mail: e.wolanski@aims.gov.au

<http://www.aims.gov.au/ibm>

A Symposium on **Eastern boundary upwelling ecosystems: integrative and comparative approaches** will be held **2–6 June 2008**, at **Las Palmas de Gran Canaria, Spain**, with conveners Pierre Freon (IRD), Manuel Barange (GLOBEC), Javier Aristegui (ULPGC).

A Scientific Steering Group has been established. Sponsors are IRD, GLOBEC, EurOceans, IMBER, SOLAS, ULPGC. The scientific programme is largely in place, a folder has been publicized and circulated.

Coping with Global Change in marine social-ecological systems, FAO, Rome, Italy, July 2008.

<http://www.peopleandthesea.org/>

A Symposium on **Coping with global change in marine socio-ecological systems** will be held **8–10 July 2008**, at **Rome, Italy**, with conveners Ian Perry (Canada), Rosemary Ommer (Canada), Philippe Cury (France).

A Scientific Steering Group has been established with members to be nominated by relevant Working Groups to assist the Convener in planning the Symposium. In consultation with the Convener, the General Secretary will solicit appropriate co-sponsorship.

31. International Conference on Coastal Engineering (ICCE 2008), August 31 – September 5, 2008, in Hamburg.

<http://icce2008.hamburg.baw.de>

Contact:

Dr.-Ing. Holger Schüttrumpf
Bundesanstalt für Wasserbau (BAW)
Federal Waterways Engineering and Research Institute
Wedeler Landstr. 157
22559 Hamburg

phone: (+49)-40-81908-332

Fax.: (+49)-40-81908-373

e-mail: schuettrumpf@hamburg.baw.de

6th International Conference on Asian Marine Geology (ICAMG-VI), 29th August to 1st September, Kochi, Japan.

Call for Sessions Deadline of abstract submission: May 1st, 2008 (planned)

<http://ofgs.ori.u-tokyo.ac.jp/ICAMG6/>

September 21–24, 2008: 7th International Conference on Tidal Environments (Tidalite 2008)

Sept 16–21, 2008: Pre-excursion (China coasts),

Sept 25–26, 2008: Post-excursion, Qingdao, China

<Circular pdf file>: <http://unit.aist.go.jp/igg/rg/cug-rg/ADP/files/Tidalites%202008%20First%20Circular.pdf>

The ICES/NAFO symposium on The Role of Marine Mammals in the Ecosystem in the 21st Century will be held on 29 September – 1 October 2008, at Dartmouth, Nova Scotia, Canada

with co-conveners Garry Stenson (NAFO) and Tore Haug (ICES).

2nd Symposium on the Ocean in a High-CO₂ World, Monaco, 6–8 October 2008

with James Orr (Monaco, Chair), Ken Caldeira (USA), Victoria Fabry (USA), André Freiwald (Germany), Jean-Pierre Gattuso (France), Peter Haugan (Norway), Patrick Lehodey (France), Silvio Pantoja (Chile), Hans-O. Pörtner (Germany), Ulf Riebesell (Germany), and Tom Trull (Australia) as the organizing committee. Main sponsors are SCOR, IOC, IAEA, and IGBP.

A Scientific Steering Group will be established with members nominated by relevant Working Groups to assist the organizers in planning the Symposium. In consultation with the ICES representatives, the General Secretary will solicit appropriate co-sponsorship.

Social Challenges of Global Change – IHDP Open Meeting 2008, October 15–19, 2008, New Delhi, INDIA

<http://www.openmeeting2008.org>

EMECS 8 International Conference, Shanghai, October 27–30, 2008

<http://www.emecs-8.ecnu.edu.cn>

Harmonizing River Catchment and Estuary

In many parts of the world there are bodies of water that are almost entirely enclosed by land. However, exhibiting unique combinations of saline and fresh waters, these bodies of water are called enclosed coastal seas (estuary). Examples include the North Sea and the English Channel, the Mediterranean Sea, the Baltic Sea in Europe, Chesapeake Bay in the United States of America, the Gulf of Thailand, the Bo Hai in northern China and the Seto Inland Sea in Japan. Since ancient times, enclosed coastal seas have been known for their great scenic beauty and abundant productivity. However, enclosed coastal seas are difficult places to conserve and improve water quality, because pollutants tend to accumulate easily due to poor exchange of water with open water bodies. In order to exchange information on the measures to conserve and create coastal seas, the world's first International Conference on the Environmental Management of Enclosed Coastal Seas (EMECS 1) was held in the city of Kobe, Japan in 1990. Due to the success of the 2nd conference (EMECS 2) in Maryland, U.S.A. in 1993 and subsequent activities, the International EMECS Center was established in Kobe in 1994. EMECS is now recognized internationally, and activities in which scholars, government officials, industry representatives and private organizations work together to solve problems in enclosed coastal seas are now referred to as EMECS activities. Another key concept for EMECS in both international and academic circles is 'governance' meaning comprehensive and joint management of enclosed coastal sea environments.

The EMECS 8 calls for its theme: 'Harmonizing River Catchment and Estuary' which is proposed on the basis of the rapid growing Asian economy that inevitably gives rise to intensifying modification between river catchment and estuary. This example can also apply to any analogue of the world, where the EMECS 8 conference theme should be used for ecosystem safety. Like all other conference, EMECS 8 is to provide a forum to all participants, including natural and social scientists, administrators, government officers, and younger students, to interact each other to work out a better understanding of how to minimize potentiality of the environmental risk. This is pursuing a harmonizing society with global concept of environmental conservation.

EMECS 8 International Conference theme:

Harmonizing River Catchment and Estuary

Environmental Vulnerability Under Global Warming Setting

Integrated Catchment-Coastal Zone Management

Landcover Changes: from Catchment to Coastal Seas

New Approaches

Social Responsibility and Awareness

Organized by:

East China Normal University
Chinese Research Academy of Environmental Sciences (CRAES), SEPA
International EMECS Center

Zhongyuan Chen
Conference Secretariat

East China Normal University
Shanghai China
Z.Chen@ecnu.edu.cn
emecs8@mail.ecnu.edu.cn

A World Conference on Marine Biodiversity will be held **11–15 November 2008, at Valencia, Spain**

<http://www.marbef.org/worldconference/>

with Carlo Heip (The Netherlands) and Carlos Duarte (Spain) as conference Chairs; Jake Rice, Canada, and Heye Rumohr, Germany as ICES co-conveners of the theme session.

A Scientific Steering Group has been established including ICES membership.

October 27 – November 3, 2008: International Conference on Deltas (China venue)

5th Annual Meeting of IGCP-475 DeltaMAP, Shanghai and Qingdao

In conjunction with EMECS-8 in Shanghai

Excursions to the Yangtze Delta, Old-Yellow River Delta, Modern Yellow River Delta

2009

An **ICES Symposium on issues confronting the deep oceans** will be held in the Azores, in April 2009. The prime focus will be on the North Atlantic (ICES + NAFO Areas) but relevant contributions from elsewhere will be included. Conveners will be Robert Brock (USA) and Gui Menezes (Portugal). A scientific committee will be established to include relevant scientific disciplines and regulatory authorities. In consultation with the conveners, the General Secretary will solicit appropriate co-sponsorship.

The proceedings will be published in the ICES Journal of Marine Science in 2010.

An **ICES Symposium on Rebuilding Depleted Fish Stocks – Biology, Ecology, Social Science and Management Strategies** will be held during the autumn 2009 at Hamburg (Germany) with Cornelius Hammer (Germany), Olav Kjesbu (Norway) and Peter Shelton (Canada) as Conveners.

A **Scientific Steering Group** will be established comprising 12–15 leading scientists, approx. 5–8 leading scientists



from the UNCOVER project and approx. 5–8 scientists from outside the project as well as from outside Europe.

The proceedings will be published in the *ICES Journal of Marine Science* in 2010.

2010

An ICES Symposium on the Collection and Interpretation of Fishery Dependent Data will be held during the summer 2010, in Galway, Ireland

with N. Graham (Ireland), K. Nedreaas (Norway), and W. Karp (USA) as Conveners.

A Scientific Steering Group will be established with members nominated by relevant Working Groups to assist the Conveners in planning the Symposium. The Symposium will be co-sponsored by the Marine Research Institute of Ireland and the United States National Oceanic and

Atmospheric Administration and will be held in association with FAO. In consultation with the Conveners, the General Secretary will solicit further co-sponsorship as appropriate.

An ICES/NASCO/NPAFC Symposium on Marine Mortality of Salmon will be held in October 2010 in Europe

with Niall Ó Maoiléidigh (ICES), Malcolm Windsor (NASCO), and Jim Irvine (NPAFC) as Conveners.

A Scientific Steering Group will be established with members nominated by each organization to assist the Conveners in planning the Symposium.

For more meetings and regular updates please also visit the LOICZ website www.loicz.org

Update us so we can update you

LOICZ INPRINT informs you about the LOICZ Project and its activities. But LOICZ has access to much more information and wants to make this information available to you as effectively as possible. To be able to provide you with LOICZ information that fits your expertise and interests most, we need input from your side telling us what your interests in LOICZ are and how we can contact you.

Please complete the following form where applicable and return by fax, post or e-mail to the LOICZ IPO.
(An electronic version of this form can also be found on www.loicz.org under Newsletter.)

First name:	
Last name:	
Organization/Institution:	
Address:	
Place:	
Postal code:	
Phone (include country code):	
Fax (include country code):	
e-mail:	
(Organization's) website:	
Field of expertise:	

Please indicate which LOICZ theme(s)* you are contributing to:

- Theme 1
 Theme 2
 Theme 3
 Theme 4
 Theme 5

Please indicate which LOICZ key topic(s)** you are interested in:

- Topic 1
 Topic 2
 Topic 3
 other

How do you want to receive the LOICZ Newsletter in the future?

- hardcopy
 pdf-file via e-mail
 e-mail alert
 not at all

* More detailed information on the LOICZ Research Themes is available in the Science Plan on the LOICZ website (www.loicz.org)

** Detailed descriptions of the topics are featured in first issue of INPRINT and on the website

Please return this form by:

- e-mail: loicz.ipo@loicz.org
- fax: +49 4152 87 2040
- mail: LOICZ IPO – GKSS Research Centre
Institute for Coastal Research
Max-Planck-Strasse 1
21502 Geesthacht, Germany





Publication details

The LOICZ Newsletter is produced three times per year to provide news and information regarding LOICZ activities. The views and opinions in this newsletter do not necessarily represent the position of LOICZ or its sponsoring organizations.

Published and edited by:

The Land-Ocean Interactions in the Coastal Zone International Project Office

Design:

Ellen-Barbe Goldberg
Ute-Gerit Stoffregen
Hester Whyte

Printing and lay-out:

GKSS-Hausdruckerei, Geesthacht, Germany

Photographs and illustration:

The illustration of the coastal zone on the front page is made by the artist Glynn Gorick, UK, 2005 and commissioned by LOICZ/IGBP. The photographs on the front and back page of this newsletter are copyright to Martin Le Tissier. Photo H. Kremer (front page): Part of Penglai Castle, and Penglai Pavilion; a 1000 year old fortress overlooking the junction of the Bohai and Yellow Sea 65 km north west of Yantai.

Contact:

GKSS Research Centre, LOICZ IPO
Institute for Coastal Research
Max-Planck-Str. 1
21502 Geesthacht, Germany
phone: +49-4152-872009 • fax: +49-4152-872040
e-mail: loicz.ipo@loicz.org • internet: www.loicz.org

LOICZ in brief

LOICZ aims to provide science that contributes towards understanding the Earth system in order to inform, educate and contribute to the sustainability of the world's coastal zone. LOICZ is a core project of the International Geosphere-Biosphere Programme (IGBP) and the International Human Dimensions Programme on Global Environmental Change (IHDP).

The LOICZ IPO is hosted by the Institute of Coastal Research at GKSS Research Centre which is part of the Helmholtz foundation.

LOICZ research as outlined in the science plan and implementation strategy is organised around five themes:

- Vulnerability of coastal systems and hazards to society
- Implications of global change for coastal ecosystems and sustainable development
- Human influences on river-basin-coastal zone interaction
- Biogeochemical cycles of coastal and shelf waters
- Towards coastal system sustainability by managing land-ocean interactions

The Science Plan and Implementation Strategy is available electronically on the LOICZ website and in hard copy at the LOICZ IPO.

Get involved

If you wish to contribute to LOICZ INPRINT please send an e-mail to: loicz.ipo@loicz.org or visit the LOICZ website www.loicz.org for article requirements.

If you have a project you would like to affiliate to LOICZ please go to www.loicz.org and click on research for detailed information.

